

COMPRESSOR STATION 206 IS ANTICIPATED TO EMIT TOXINS - PARTICULATE MATTER, FORMALDEHYDE, BENZENE, AMMONIA, ETHYLBENZENE, ACETALDEHYDE, NAPHTHALENE, XYLENE, TOLUENE, AS WELL AS GREENHOUSE GAS AND OTHER AIR POLLUTANTS.

Yet

FERC said that a Health Impact Assessment around the proposed Compressor Station 206 was not warranted.

The Federal Energy Regulatory Commission (FERC) issued the Draft Environmental Impact Statement (DEIS) on March 23, 2018, and FERC concluded that “construction and operation of the Project would not have a significant impact on air quality and a health impact assessment for a facility of this size and limited impact is not warranted.” FERC also wrote: “Given adherence to Transco’s proposed measures as well as our additional recommendations, and compliance with state and federal air permit conditions, we conclude that potential air impacts associated with the Project would be adequately minimized and that a health impact assessment for a facility of the size and impact of Compressor Station 206 is not warranted.” As support for these conclusions, FERC noted the following for the stated estimated emissions that accounted for air pollution control measures:

New Jersey requires that new or modified air emissions equipment or control devices incorporate SOTA control technology where NAAQS criteria pollutants and HAPs emissions exceed thresholds identified in the state code. New Jersey has adopted the NAAQS but has additional ambient air quality standards, including an annual and 24-hour standard for total suspended particulates and a 1-hour ozone standard.

- The turbines at Compressor Station 206 would meet SOTA requirements through the use of SoLoNOx and SCR technology. These control technologies ensure that NOx and CO emissions meet performance levels required by SOTA regulations.
- Transco would employ air pollution control measures to reduce NOx, CO, and HAP emissions.

At full-capacity upper bound (i.e., the station’s full potential to emit), emissions from the station would meet the NAAQS, which were established to protect human health (including sensitive subpopulations such as children or those with chronic illnesses) and public welfare.

- Transco conducted modeling in accordance with EPA and NJDEP guidelines, and the results indicate that Compressor Station 206 would meet the NAAQS.
- Transco performed an ambient air quality modeling analysis to determine local impacts from Compressor Station 206 using the EPA’s AERMOD dispersion model (Version 16216) in screening mode, which indicated that the maximum modeling concentrations of criteria pollutants would not contribute to an exceedance of the NAAQS.

HAPs, also known as toxic air pollutants or air toxics, are those pollutants that are known or suspected to cause cancer or other serious health effects.

- There are no national air quality standards for HAPs, but their emissions are limited through permit thresholds and technology standards.
- New Jersey maintains regulations limiting emissions of HAPs.
- The station would be a minor source of HAPs and other emissions under federal air permitting programs (i.e., New Source Review, Title V, and National Emissions Standards for Hazardous Air Pollutants).

The points cited above are from FERC’s DEIS – Executive Summary (pages ES-5 to ES-7), Environmental Analysis (page 4-292) and their Conclusions and Recommendations (page 5-20)

We disagree with FERC's conclusion that there is no need for a Health Impact Assessment

1. The National Ambient Air Quality Standards (NAAQS) were established in 1970 and updated as recently as 2010 to 2015. These standards set levels that are anticipated to protect human health and public welfare when the following six (6) "criteria pollutants" are measured over time and within a 30+-mile range: Carbon Monoxide (CO), Nitrogen Dioxide (NO_x), Particulate Matter (PM_{2.5} and PM₁₀), Sulfur Dioxide (SO₂), Lead (Pb), and Ozone (O₃).
 - a. Measurement of these and other toxic airborne elements is not required to be at the source of the polluting facility, and there is no separate accounting for higher levels of dangerous emissions during peak emissions (like during blowdowns).
2. According to FERC's online database, they have not performed a Health Impact Assessment during the past twelve years. There is currently a requirement for a HIA to be completed for a liquefied natural gas project in Alaska during the application review period (CP17-178, Alaska LNG Project).
3. Recent studies (see sample list at the end) detail known and evidenced health hazards resulting from natural gas-fired compressor station emissions and causal evidence of long-term chronic health conditions.
4. A study of nearly 2.5 million veterans followed for over eight years concluded that there is a significant association between exposure to airborne Particulate Matter (PM_{2.5}) and kidney disease. The authors found that levels of PM_{2.5} that were below the EPA threshold of 12 microgram/ m³ were associated with risk of Chronic Kidney Disease (CKD) and end-stage renal disease (ESRD).
 - The Application from Williams/Transco for the Northeast Supply Enhancement Project indicates an expectation, based on modeling, that PM_{2.5} emissions for Compressor Station 206 and background air would be close to "acceptable" thresholds:
Annual: 10.1 microgram/m³ (EPA-NAAQS threshold: 12 microgram/m³)
24-hour: 32.1 microgram/m³ (EPA-NAAQS threshold: 35 microgram/m³)
5. In the DEIS for NESE, FERC did not indicate reviewing recent developments and studies correlating natural gas fired compressor emissions with direct health hazards.
6. Williams/Transco has identified the estimated airborne emissions that would come from the proposed Compressor Station 206 to be:
Estimated emissions from proposed compressor, in tons per year (tpy), for:

CO = 56.86tpy	NO _x = 22.74tpy	VOC = 8.35tpy	PM ₁₀ = 18.94tpy
PM _{2.5} = 18.94tpy	SO ₂ = 3.07tpy	GHG (natural gas) = 132,720tpy	

Estimated caustic chemical emissions, in pounds per year (lbs/yr), for:

Formaldehyde= 660lbs/yr	Ammonia = 29,580lbs/yr	Acrolein = 6lbs/yr
Acetaldehyde = 44lbs/yr	Ethylbenzene = 34lbs/yr	Benzene = 14lbs/yr
Toluene = 142lbs/yr	Propylene Oxide = 32lbs/yr	Xylenes = 70lbs/yr

 - a. However,
 - These estimated emissions have not been validated by FERC.
 - FERC has not performed a health impact of the above identified chemicals in recent years.
 - Federal and New Jersey state agencies have recognized the above stated airborne chemical emissions as highly toxic to human health causing a variety of immediate and chronic health conditions.
7. The ambient air sampling that was completed for the NESE Project used stations in Elizabeth, North Brunswick, and East Brunswick NJ as well as Philadelphia PA, and each only measured specific components.

8. There was no local assessment of air quality emissions that included the airborne pollutants from the mining operations of Trap Rock Quarry in combination with the anticipated emissions from Compressor Station 206.

In conclusion,

- A. An Environmental Impact Statement that does not include analysis of health or environmental impact of chemical emissions from Compressor Station 206 cannot be recognized as a legitimate environmental impact statement.
- B. There has not been an adequate assessment of the potential detrimental health impacts from construction and operations of the proposed Compressor Station 206 on the residents around this site.
- C. Declaring that the NESE Project's Compressor Station 206 toxic emissions do not warrant a Health Impact Assessment because emissions of the "criteria pollutants", which are the only ones accounted for in the NAAQS, are below threshold levels, and that the size of this project was a determining factor in reaching this conclusion, is not acceptable in an effort to protect the health of nearby residents and wildlife.
- D. To protect the health of our community and the environment, we continue to strenuously urge that FERC conduct a thorough and comprehensive Health Impact Assessment of the proposed Williams-Transco Compressor Station 206 emissions regarding health and environmental impact for the immediate areas as well as long-term contamination potential for the future 2045 reservoir site that starts before any construction and continues for at least three (3) years after operation if it is approved.
- E. We continue to believe that the Federal Energy Regulatory Commission should require Williams/Transco to commit to and fund continuous air sampling at the site of the proposed Compressor Station 206 before and during construction as well as for the lifetime of the compressor station. Results of this air quality monitoring should be available for public review.

REFERENCES

(1) Studies of Health Hazards of Emissions from Natural Gas-Fired Compressor Stations

Bowe, B., Xie, Y., Li, T., Yan, Y., Xian, H. & Al-Aly, Z. (2017, September 21). Particulate matter air pollution and the risk of incident CKD and progression to ESRD. *Journal of American Society of Nephrology*, 29: 218-230. Retrieved from <http://jasn.asnjournals.org/content/29/1/218.full.pdf+html>

Compendium of scientific, medical, and media findings demonstrating risks and harms of fracking (unconventional gas and oil extraction) (5th ed.) (2018, March). Concerned Health Professionals of New York & Physicians for Social Responsibility. Retrieved from <http://concernedhealthny.org/compendium/>

Kloczko, N. (2015, November). A brief review of compressor stations. Southwest Pennsylvania Environmental Health Project. Retrieved from <http://www.environmentalhealthproject.org/files/A%20Brief%20Review%20of%20Compressor%20Stations%2011.2015.pdf>

NY Compressor Station Report. Retrieved from <http://www.environmentalhealthproject-ny.org/>

70 chemicals released from compressor stations are linked to 19 of 20 major categories of human disease.

Russo, P.N. & Carpenter, D.O. (2017, October 12). Health effects associated with stack chemical emissions from NYS natural gas compressor stations: 2008-2014. Institute for Health and the Environment - A Pan American Health Organization / World Health Organization Collaborating Centre in Environmental Health, University at Albany. Retrieved from https://www.albany.edu/about/assets/Complete_report.pdf

Summary of Minisink Monitoring Results.

Retrieved from <http://www.environmentalhealthproject.org/resources/10/click/5>

Summary on compressor stations and health impacts. (2015, February 24). Southwestern Environmental Health Project. Retrieved from <http://www.environmentalhealthproject.org/files/Summary%20Compressor-station-emissions-and-health-impacts-02.24.2015.pdf>

The hazards of a compressor station: A town wakes up to the realities of corporate deception. (2015, November). Retrieved from

<http://350ma-berkshires.org/the-hazards-of-a-compressor-station-a-town-wakes-up-to-the-realities-of-corporate-deception/>

Dr. Nordgaard's [Boston pediatrician] "main point was that the EPA limits do not closely reflect actual human health risks. The closer you are to the compressor station, the worse the symptoms experienced. Both doctors [Dr. Nordgaard & Dr. Sheila Bushkin-Bedient, physician at Albany's Institute for Environmental Health] agreed that many of these chemicals are known carcinogens and respiratory irritants, but that an even greater danger would come from their synergistic combinations, some of which have never before been tested on humans."

(2) Federal and New Jersey State Agency chemical references recognizing above stated airborne chemical emissions as highly toxic to human health causing a variety immediate and chronic health conditions from CS206 emissions (see attachment).

<p>Ammonia</p> <p>CS206 emission 29,580 lbs per year</p>	<ul style="list-style-type: none"> ● Suspected liver, gastrointestinal, reproductive, respiratory, skin, and neurotoxicant (EDF Goodguide) ● Exposure from inhalation may cause bronchiolitis obliterans; symptoms include cough, wheezing, obstructive/restrictive defect, chronic shortness of breath and difficulty breathing from low activity, increased inflation of lungs (HAZMAP) ● Exposure through inhalation may cause toxic pneumonitis (acute inflammation of lungs); symptoms include burning, chest tightness, conjunctivitis, cough, dark or bluish color of skin due to oxygen deficient blood, shortness of breath and difficulty breathing from low activity, crackling when listening to breathing with stethoscope, excessive tearing of eyes, sore throat, pulmonary edema (increased fluid in lung tissues), runny nose, wheezing (HAZMAP) ● Exposure through inhalation may cause chronic bronchitis; symptoms include coughing up phlegm, wheezing (HAZMAP) ● TOXIC; may be fatal if inhaled, ingested or absorbed through skin; vapors are extremely irritating and corrosive (NOAA) ● High exposure can cause a build-up of fluid in the lungs (pulmonary edema) (NJ Fsheet) ● Strong irritant to eyes, skin, respiratory tract (HSDB) ● Exposure to high levels of ammonia in air may be irritating to skin, eyes, throat, and lungs and cause coughing and burns; lung damage and death may occur after exposure to very high concentrations of ammonia; some people with asthma may be more sensitive to breathing ammonia than others (ASTDR) ● Populations at increased risk include asthmatics, those hyper reactive to other respiratory irritants, and those with glaucoma, corneal disease, and chronic respiratory disease (HSDB) ● Agency exposure limits: <ul style="list-style-type: none"> ○ CDC Acute Inhalation Risk Level at 1.7 Parts Per Million (PPM) ○ OSHA: 50ppm over 8 hour work shift ○ NIOSH: 25ppm over 10 hour work shift (NJ Fsheet)
<p>Formaldehyde</p> <p>CS206 emission 660 lbs per year</p>	<ul style="list-style-type: none"> ● Known carcinogen (HAZMAP) ● Suspected gastrointestinal/liver, immune system, neuro, reproductive, respiratory, and skin/sense organ toxicant (EDF Goodguide) ● Adverse effects from exposure include asthma and toxic pneumonitis (inflammation of the lungs) (HAZMAP) ● High exposure through inhalation can cause a buildup of fluids in the lungs (NJ Fsheet) ● Repeated exposure may cause bronchitis and an asthma like allergy (NJ Fsheet) ● Limited evidence that exposure may damage developing fetus and affect female fertility (NJ Fsheet) ● Eye, skin, and respiratory tract irritant (HSDB) ● People with asthma may be particularly sensitive to exposure (HSDB) ● Exposure through inhalation can cause burning sensation, cough, headache, nausea, and shortness of breath (NIOSH) ● Agency exposure limits: <ul style="list-style-type: none"> ○ CDC Acute Inhalation Risk Level at .04 parts per million (PPM) ○ OSHA: 0.75ppm averaged over 8 hour work shift ○ NIOSH: 0.016ppm averaged over 10 hour work shift (NJ Fsheet)

<p>Benzene</p> <p>CS206 emission 14 lbs per year</p>	<ul style="list-style-type: none"> ● Listed as a known carcinogen (HAZMAP) ● Listed as a recognized carcinogen and developmental and reproductive toxicants (EDF Goodguide) ● Listed as a cause of anemia (decrease in number of red blood cells) (HAZMAP) ● Listed as a neurotoxin (cause of central nervous system solvent syndrome) (HAZMAP) ● Listed as a reproductive toxin (HAZMAP) ● Listed as a suspected cardiovascular/blood, endocrine, gastrointestinal/liver, immune system, neuro-, respiratory, skin/sense organ toxicant (EDF Goodguide) ● The major effect of benzene from long-term exposure is on the blood; causes harmful effects on the bone marrow and can cause a decrease in red blood cells leading to anemia; can also cause excessive bleeding and can affect the immune system, increasing the chance for infection (ASTDR) ● Occupational diseases associated with exposure include: leukemia and aplastic anemia (symptoms include fever, bleeding into the skin, mouth, nose, and gastrointestinal tract caused by the low platelet count of aplastic anemia and the damage to capillaries caused by viral hemorrhagic fevers, decreased white blood cell count, tiny circumscribed foci of extravagated blood in the skin); large areas of confluent petechiae are called purpura, ecchymoses, or bruises (HAZMAP) ● Acute exposure to high concentrations of benzene in air results in neurological toxicity (headache, dizziness, drowsiness, confusion, tremors, and loss of consciousness) (HSDB) ● Agency exposure limits: <ul style="list-style-type: none"> ○ CDC Acute Inhalation Risk Level at .009 Parts Per Million (PPM) ○ OSHA: 1ppm averaged over 8 hour work shift ○ NIOSH: 0.1ppm averaged over 10 hour work shift (NJ Fsheat)
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Ethylbenzene

CS206 emission
34 lbs per year

- Possible human carcinogen ([ASTDR](#))
- Listed as a suspected blood/cardiovascular, developmental, endocrine, gastrointestinal/liver, kidney, neuro, reproductive, respiratory, and skin/sense organ toxicant ([EDF Goodguide](#))
- Limited evidence that ethylbenzene may damage the developing fetus ([NJ Fsheet](#))
- Exposure to relatively low concentrations of ethylbenzene in air for several months to years causes kidney damage in animals ([ASTDR](#))
- High exposure can cause symptoms similar to chronic solvent encephalopathy, a syndrome with a variety of central nervous effects ([HAZMAP](#))
- Exposure may cause acute toxic effects such as difficulty concentrating, confusion, dizziness, fatigue, irritability, lethargy, impaired speech ([HAZMAP](#))
- Most severe irritant of benzene series ([HSDB](#))
- Exposure to high levels of ethylbenzene in air for short periods can cause eye and throat irritation; exposure to higher levels can result in dizziness ([ASTDR](#))
- Irreversible damage to the inner ear and hearing has been observed in animals exposed to relatively low concentrations of ethylbenzene for several days to weeks ([ASTDR](#))
- Inhalation may cause irritation of nose, dizziness, depression ([NOAA](#))
- Agency exposure limits
 - **CDC Acute Inhalation Risk Level at 5 Parts Per Million (PPM)**
 - **OSHA: 100ppm** averaged over 8 hour work shift
 - **NIOSH: 100ppm** averaged over 10 hour work shift ([NJ Fsheet](#))

<p>Acetaldehyde</p> <p>CS206 emission 44 lbs per year</p>	<ul style="list-style-type: none"> ● Listed as a possible human carcinogen (HSDB) ● Suspected developmental, immune system, kidney, neuro, respiratory, skin/sense organ toxicant (EDF Goodguide) ● Acetaldehyde may cause birth defects in humans since it causes them in animals (NJ Fsheet) ● Exposure can cause toxic pneumonitis (inflammation of the lungs) (HAZMAP) ● Eye irritant at 50ppm for 15 min.; respiratory tract irritant at 134ppm for 30 min.; nose and throat irritant at 200ppm for 15 min. (HSDB) ● Breathing vapors will be irritating and may cause nausea, vomiting, headache, and unconsciousness (NOAA) ● Exposure to high concentrations can cause headache, dizziness, headache, light-headedness, and passing out (NJ Fsheet) ● Higher exposures may cause a buildup of fluid in the lungs (NJ Fsheet) ● Repeated exposure may bronchitis to develop with coughing, phlegm, and shortness of breath (NJ Fsheet) ● Agency exposure limits: <ul style="list-style-type: none"> ○ CDC Acute Inhalation Risk Level - A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C. ○ OSHA: 200ppm over 8 hour work shift ○ NIOSH: limit to lowest feasible concentration (NJ Fsheet)
<p>Naphthalene</p> <p>CS206 emission 2 lbs per year</p>	<ul style="list-style-type: none"> ● Listed as a possible carcinogen (HSDB) ● Suspected cardiovascular/blood, developmental, gastrointestinal/liver, neuro, respiratory, skin/sense organ toxicant (EDF Goodguide) ● Limited evidence that exposure may damage developing fetus (NJ Fsheet) ● May damage red blood cells causing anemia (low blood count) (NJ Fsheet) ● Exposure to large amounts may damage red blood cells or cause hemolytic anemiadestroy (destroys red blood cells resulting in too few red blood cells until body replaces them; symptoms include fatigue, lack of appetite, restlessness, and pale skin) (ASTDR) ● Exposure may cause methemoglobinemia (blood disorder in which an abnormal amount of methemoglobin [form of hemoglobin--the molecule in red blood cells that distributes oxygen to the body] is produced, preventing oxygen from being effectively released to tissues in the body) (HAZMAP) ● Naphthalene is an ocular irritant that has caused cataracts in exposed workers (HAZMAP) ● Acute toxic effects from exposure include abdominal pain, confusion, cough, fatigue, wheezing, weakness, buildup of fluid in the lungs, nausea, and more (HAZMAP) ● Effects from exposure through inhalation include headache, weakness, nausea, vomiting, sweating, confusion, jaundice, and dark urine (NIOSH) ● People with blood, kidney, or liver diseases may be at a heightened risk (HSDB) ● Agency exposure limits: <ul style="list-style-type: none"> ○ CDC Chronic Inhalation Risk Level at .0007 Parts Per Million (PPM) ○ OSHA: 10ppm averaged over 8 hour work shift ○ NIOSH: 10ppm averaged over 10 hour work shift (NJ Fsheet)

<p>Toluene</p> <p>CS206 emission 142 lbs per year</p>	<ul style="list-style-type: none"> ● Listed as a recognized developmental toxicant (EDF goodguide) ● Listed as a suspected cardiovascular/blood, gastrointestinal/liver, immune system, kidney, neuro-, reproductive, respiratory, and skin/sense organ toxicant (EDF goodguide) ● Inhaling high levels of toluene in a short time can make you feel light-headed, dizzy, or sleepy; can also cause unconsciousness, and even death (ASTDR) ● High levels of toluene may affect your kidneys (ASTDR) ● Toluene may cause birth defects in humans as it has been shown to cause them in animals (NJ Fsheets) ● Toluene may damage developing fetus (NJ Fsheets) ● High exposure can cause symptoms similar to chronic solvent encephalopathy (a syndrome with a variety of central nervous effects) (HAZMAP) ● Exposure may cause acute toxic effects such as difficulty concentrating, confusion, dizziness, fatigue, irritability, lethargy, impaired speech (HAZMAP) ● Toluene may affect the nervous system; low-to-moderate levels can cause tiredness, confusion, weakness, drunken-type actions, memory loss, nausea, loss of appetite, and hearing and color vision loss; these symptoms usually disappear when exposure is stopped (ASTDR) ● Vapors irritate eyes and upper respiratory tract; cause dizziness, headache, anesthesia, respiratory arrest (NOAA) ● Inhaling can irritate the nose and throat causing coughing and wheezing (NJ Fsheets) ● People with central nervous system or liver diseases may be especially sensitive (HSDB) ● Agency exposure limits: <ul style="list-style-type: none"> ○ CDC Acute Inhalation Risk Level at 4 Parts Per Million (PPM) ○ OSHA: 200ppm averaged over 8 hour work shift ○ NIOSH: 300ppm averaged over 10 shift (NJ Fsheets)
<p>Xylene</p> <p>CS206 emission 70 lbs per year</p>	<ul style="list-style-type: none"> ● Temporary memory loss, confusion, and laboratory evidence of liver injury have been reported in workers overexposed to xylene (HAZMAP) ● Listed as a suspected cardiovascular, developmental, liver, immune system, kidney, respiratory, skin, reproductive, and immune system toxin (EDF Goodguide) ● Listed as a neurotoxin (EDF Goodguide) ● People who breathe high levels may have dizziness, confusion, and a change in their sense of balance (ASTDR) ● Exposure to high levels for short periods can also cause irritation of the skin, eyes, nose, and throat; difficulty in breathing; problems with the lungs; delayed reaction time; memory difficulties; stomach discomfort; and possibly changes in the liver and kidneys (ASTDR) ● Inhalation can irritate the nose and throat causing coughing and wheezing (NJ Fsheets) ● Exposure can cause headache, nausea and vomiting, dizziness, light-headedness and passing out (NJ Fsheets) ● Repeated exposure can affect concentration, memory, vision, and muscle coordination (NJ Fsheets) ● CDC Acute Inhalation Risk Level at 4 Parts Per Million (PPM)